

10W High-Reliability

12.25 cu in Design

S-Band Operation

2200.5 to 2290.5 MHz

2310.5 to 2390.5 MHz

Multimode

Tier 0—PCM/FM

Tier I—SOQPSK-TG

Tier II—Multi-H CPM



Description:

Microwave Innovations offers its 10W S-Band Multimode Telemetry Transmitter for those needing high-reliability and proven performance. Serving in environments from ground, airborne, or space, this transmitter is designed to assure mission success.

The ARTM Telemetry Transmitter is a multimode (Tier 0, I, and II) compliant standard Commercial-Off-The-Shelf (COTS) product which supports a Fixed Data Rate Input or a Clock & Data Input for dynamic data rate requirements. The design features a high-efficiency DC Regulator and a high-reliability RF power amplifier with an RF Isolator protected output as standard. An optional isolated DC Power Regulator is also available to support isolated power return interests.

Full ARTM spectral efficiency is supported even at Low Data Rates with Ultra-Low Phase Noise Performance in high shock and vibration environments. An IRIG 106 compatible Randomizer

feature and an Appendix-N compliant user interface are also standard. Data & Clock inputs supported include: TTL/LVTTL 250 kbps to 40 Mbps, 100-ohm balanced RS422 and Balanced LVDS. Optional features include external switched modulation & frequency mode control, and RF enable/disable input. Under Voltage Lockout option is also available for low power input conditions.

The ARTM Multimode Transmitter is leveraging off of well established high-reliability designs that have been flown on the most demanding programs. The COTS design can be supplied with a high-reliability Parts Program for established reliability and performance meeting the most extreme mission performance requirements.

Microwave Innovations' high-reliability, high-shock, and extreme environmental performance heritage is broadly recognized for ground, air, sea, and space environments.



Part Number Builder

DTTS-1225-10W + (Customer Requirements)

Example: DTTS-1225-10W-D(r)-FS(Fc)-R(x)
Digital Telemetry Transmitter, S-Band, 10W, Standard

Short Option List

D(r) - Data Rate and Clock Tracking (D&C)
S — 2200.5—2290.5 MHz Operation (Factory Set Frequency)-Fc
US — 2310.5— 2390.5 MHz Operation (Factory Set Frequency)-Fc
ISO — Isolated +28VDC Regulator

SPECIFICATIONS

RF Output

Frequency: 2200.5 to 2290.5 or 2310.5 to 2390 MHz
(Frequency Step Size 0.5 or 1.0 MHz)

Carrier Stability: Within $\pm 0.002\%$ over temperature

RF Power: 10 Watts (Minimum)

VSWR: 1.5:1 (Maximum)

Impedance: 50 Ohms (Nominal)

Loading: Normal operation into any Load VSWR and any Phase Angle

Open/Short Protection: No damage due to Open or Short of unlimited duration

Harmonic & Spurious Level: In accordance with IRIG 106-96

Modulation Input

Input Data Rates: 250 kbps to 40 Mbps (ARTM Mode 0, I, or II)

FM Peak Deviation: Factory set (0.35 x bit rate) NRZ-L

Incidental AM: 2% (Maximum)

Incidental FM: 5 kHz (Maximum)

Power Requirements

Input Voltage: +28 VDC (± 6 Typical) Reverse Polarity Protected

Input Power: Constant power of less than 40 Watts (Typical)

Environmental Specification

Operating Temperature: -20°C to +70°C (Typical)
-40°C to +85°C (Extended Range Optional)

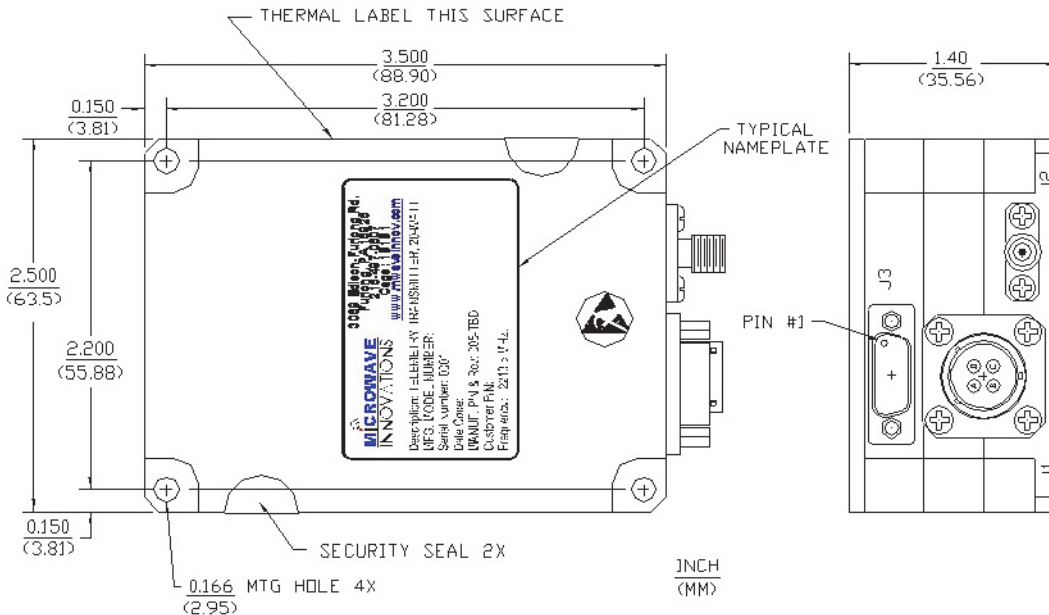
Random Vibration: 12 Grms (Acceptance), 10Hz to 2kHz, 3 axis

Sinusoidal Vibration: 20 Grms (Acceptance), 10kHz to 2kHz, 3 axis
80 Grms (Qual), 170Hz to 1700Hz, 3 Hz

Low Frequency Shock: 10Hz@41G, 23Hz@142G, 500Hz@142G

High Frequency Shock: 10Hz@8G, 1020Hz@2408 G, 10KHz@2408 G

MECHANICAL DETAIL



J3 Input Connector

| Pin | Function |
|-----|----------------------------|
| 1 | RF Enable GND |
| 2 | RF Power Hi/Lo GND |
| 4 | Clock-In (+) RS422 |
| 5 | Data-In (+) RS422 |
| 6 | Serial Control Ground |
| 8 | Serial Control Reply (TXD) |
| 9 | RF Enable Select |
| 10 | RF Power Hi/Lo Select |
| 12 | Clock-In (-) RS422 |
| 13 | Data-In (-) RS422 |
| 15 | Serial Control Input (RXD) |

Unique Customer Requirements Are Welcome

Connectors Types, PWR Non-Isolated, Enclosure Size & Mounting, RF Enable / Disable (for Key Loads), RF Center Frequency & Power Output Levels. Dual Mode External Switch. Custom Defined Acceptance & Qualification Testing, and Established Reliability Parts Program Design & Processing, including Tin-Mitigation.

